

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Henriksen *et al.* Confirmation No: 5300

Serial No.: 10/618,477 Group Art Unit: 1657

Filed: July 11, 2003 Examiner: D. Naff

For: Solid Phytase Compositions

REPLY BRIEF UNDER 37 C.F.R. 41.41

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Commissioner for Patents
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Sir:

Applicants submit this reply brief to the Examiner's Answer mailed May 25, 2007. The Answer withdrew all of the rejections, except the rejection of claims 34-38 and 40-52 under 35 U.S.C. 103(a) as being unpatentable over De Lima *et al.* (U.S. Patent No. 6,136,772) in view of Linton *et al.* (U.S. Patent No. 4,859,485) and Akhtar (U.S. Patent No. 5,750,005).

The first full paragraph on page 9 of the Answer reads:

Applicants refer to a decision (60 USPQ 2d 1423) as supporting that discovery of a new property of a new composition can make an obvious composition unobvious and patentable. However, a new property making an obvious composition unobvious is not found in this decision. The discovery that corn steep liquor stabilizes phytase when added to an animal feed composition does not make unobvious using corn steep liquor as the additive or adjunct of De Lima *et al.* to obtain the known functioning of corn steep liquor as a supplement in an animal feed composition.

This is respectfully traversed.

It is well settled that evidence of surprising and unexpected results can be used to rebut a *prima facie* case of obviousness. See, e.g., *Glaxo Group Ltd. v. Apotex Inc.*, 71 U.S.P.Q.2d 1801, 1807 (Fed. Cir. 2004).

One way for a patent applicant to rebut a *prima facie* case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected. The basic principle behind this rule is straightforward – that which would have been surprising to a

person of ordinary skill in a particular art would not have been obvious. The principle applies most often to the less predictable fields, such as chemistry, where minor changes in a product or process may yield substantially different results.

Consistent with the rule that all evidence of nonobviousness must be considered when assessing patentability, the PTO must consider comparative data in the specification in determining whether the claimed invention provides unexpected results. *In re Margolis*, 785 F.2d 1029, 1031, 228 USPQ 940, 941-42 (Fed. Cir. 1986).

In re Soni, 34 U.S.P.Q.2d 1684, 1686-1687 (Fed. Cir. 1995).

As discussed in Applicants' Appeal Brief, Applicants' specification contains working examples which demonstrate that the addition of corn steep liquor to a phytase significantly improves the stability of the phytase. These results are surprising and unexpected. Applicants therefore submit this showing overcomes the rejection under 35 U.S.C. 103.

The Examiner's Answer also responds to Applicants' reference to the prosecution history of the parent application (*i.e.*, U.S. application no. 09/410,503 which issued as U.S. Patent No. 6,610,519) as follows:

Appellants refer to claim 1 of U.S. Patent No. 6,610,519 that issued from parent application 09/410,503 over the references presently applied. However, the present claims are different from claim 1 of the patent, and the present claims do not require limitations contained by claim 1.

The Answer agrees that during prosecution of the parent application, Applicants' showing of surprising and unexpected results overcame the same rejection made in the instant application. However, the Answer states that the claims of the instant application are broader than the 519 patent claims, which for unspecified reasons renders the surprising and unexpected results insufficient to overcome the rejection. Applicants respectfully disagree.

Below is a table comparing claim 1 of U.S. Patent No. 6,610,519 ("519 Patent Claim 1") and claim 34 of the instant application ("Application Claim 34"):

	519 Patent Claim 1	Application Claim 34	Differences?
Preamble	A solid phytase composition	A solid phytase composition	None
Transition Term	consisting essentially of	comprising	Yes, but both transition terms are open-ended. The term "consisting essentially of" excludes elements that materially affect the basic and novel properties of the invention. In the context of 519 patent claim 1 and application claim 34, Applicants submit that the different transition term does not have any impact on whether a composition is encompassed by the claims. Since the basic and novel property of the invention (<i>i.e.</i> , stabilization of the enzyme having phytase activity) is recited in the second element of both claims, both claims exclude components which block the stabilization effect.
Element	an enzyme having a phytase activity of above 20 FYT/g of the composition	an enzyme having phytase activity of above 20 FYT/g of the composition ¹	Only one minor difference -- 519 patent claim 1 includes the term "a" before "phytase activity". However, the scope of this element is the same in both claims.
Element	corn steep liquor in an amount of 0.01-15% by weight to provide lactic acid in an amount sufficient to stabilize the enzyme	corn steep liquor in an amount sufficient to stabilize the enzyme having phytase activity	There are differences in the recitation of this element, but both elements require that the enzyme having phytase activity be stabilized. 519 patent claim 1 further recites that corn steep liquor is present in an amount of 0.01-15% by weight which provides lactic acid in an amount to stabilize the enzyme. The provision of lactic acid recited in 519 patent claim 1 is believed to be a reason why enzyme stabilization is achieved. However, there may be other reasons. It is well settled that an applicant is not required to know how an invention works and therefore is not required to recite in the claims how the invention works. <i>Parker v. Frilette</i> , 462 F.2d 544, 547, 174 U.S.P.Q. 321, 324 (CCPA 1972). Furthermore, third parties should not be permitted to avoid infringement if stabilization is achieved by a different mechanism and Applicants should not have the burden of proving in an infringement action that this is how enzyme stabilization is achieved.

¹ When preparing this Reply Brief, Applicants noted an error in claim 34 provided in the Claims Appendix of the Appeal Brief. The term "a" before "phytase activity" was deleted in the amendment filed on September 21, 2006, and should not have been included in the Claims Appendix. Applicants therefore include a corrected Claims Appendix. Applicants apologize for this error.

As summarized in the table, although application claim 34 is broader than 519 patent claim 1, the differences in the scope of the claims are not material to Applicants' showing of surprising and unexpected results. Thus, the results overcome the rejection under 35 U.S.C. 103.

For the foregoing reasons and the reasons set forth in Applicants' Appeal Brief, Applicants submit that claims 34-38 and 40-52 are not rendered obvious. Accordingly, the final rejection of the claims should be reversed.

Respectfully submitted,

Date: July 24, 2007

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CLAIMS APPENDIX
Copy of Claims Involved in the Appeal

- Claim 34. A solid phytase composition, comprising:
- (a) an enzyme having phytase activity of above 20 FYT/g of the composition, and
 - (b) corn steep liquor in an amount sufficient to stabilize the enzyme having phytase activity.
- Claim 35. The composition of claim 34, wherein the corn steep liquor is present in an amount of 1-5%.
- Claim 36. The composition of claim 34, having a chromatogram determined by HPLC, which has one or more of peaks 1-10.
- Claim 37. The composition of claim 34, further comprising a starch material.
- Claim 38. The composition of claim 34, further comprising wheat starch.
- Claim 39. The composition of claim 34, further comprising a disaccharide.
- Claim 40. The composition of claim 34, further comprising a carrier material.
- Claim 41. The composition of claim 34, further comprising a filler material.
- Claim 42. The composition of claim 34, further comprising one or more vitamins, one or more minerals or a mixture of both.
- Claim 43. The composition of claim 34, wherein the phytase activity is at least 25 FYT/g of the composition.
- Claim 44. The composition of claim 43, wherein the phytase activity is at least 50 FYT/g of the composition.

- Claim 45. The composition of claim 44, wherein the phytase activity is at least 100 FYT/g of the composition.
- Claim 46. The composition of claim 45, wherein the phytase activity is at least 250 FYT/g of the composition.
- Claim 47. The composition of claim 46, wherein the phytase activity is at least 500 FYT/g of the composition.
- Claim 48. The composition of claim 47, wherein the phytase activity is at least 750 FYT/g of the composition.
- Claim 49. The composition of claim 48, wherein the phytase activity is at least 1,000 FYT/g of the composition.
- Claim 50. The composition of claim 34, wherein the phytase activity is in the range of 20-50,000 FYT/g.
- Claim 51. The composition of claim 34, wherein the phytase activity is in the range of 100-25,000 FYT/g.
- Claim 52. The composition of claim 34, wherein the phytase activity is in the range of 500-10,000 FYT/g.
- Claim 53. The composition of claim 34, wherein the phytase activity is in the range of 1,000-5,000 FYT/g.